

IrDA Interface

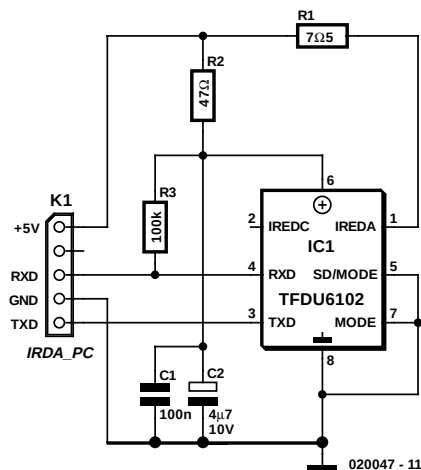
A. Bitzer

Many modern motherboards are equipped with an infrared data interface compliant with the IrDA standard, but this interface not very often used. However, it is not difficult to build a data transmission module and connect it to the corresponding header. As can readily be seen from the schematic diagram, this doesn't exactly involve a large array of ICs. This is because transceiver ICs are available for the IrDA standard, so only a few passive components have to be added to obtain an operational circuit. The author has successfully built this circuit many times using the TFDU5102 from Vishay Semiconductors (formerly Telefunken). If this IrDA transceiver is no longer available (it has been officially discontinued), the largely pin- and function-compatible TFDU6102 can be used without any problems. This IC is faster and meets the latest IrDA specification.

The TFDU6102 low-power receiver IC supports IrDA at data rates up to 4 Mbit/s (FIR), HP-SIR, Sharp ASK, and carrier-based remote control modes up to 2 MHz. The IC contains a photodiode, an infrared emitter and CMOS control logic. The IC also has internal protection against electromagnetic immisions and emissions, so no external screening is necessary. The IC works with a supply voltage of 2.7–5.5 V, so it is suitable for use in desktop PCs, notebooks, palmtops, and PDAs. It is also used in digital still and video cameras, printers, fax machines, copiers, projectors, and many other types of equipment.

The author has designed a printed circuit board for the IrDA module that is only 20 × 20 mm square. Of course, this means that all of the components are SMD types. The TFDU6102 in the 'babyface' package is available in upright and flat versions. Here the upright version (suffix 'TR3') is used. Thanks to its small size, the assembled circuit board can easily be placed behind a drive bay cover or the like. It is connected to the motherboard by a five-way flat cable. The pin assignments for header X1 must match the mating connector on the motherboard.

After you have fitted the module, you may have to edit the BIOS settings to activate the UART for IrDA operation. These



COMPONENTS LIST

Resistors:

R1 = 7Ω5 (shape I210)
R2 = 47 Ω (shape I206)
R3 = 100 k (shape I206)

Capacitors:

C1 = 100nF (shape I206)

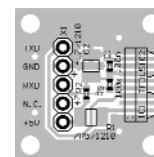
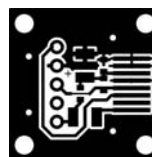
C2 = 4μF7 (shape I210)

Semiconductors:

IC1 = TFDU6102TR3
(Vishay) (Farnell)

Miscellaneous:

X1 = 5-way SIL pinheader



settings enable the (Windows) operating system to boot the new device and automatically install it. You may have to briefly insert the Windows CD to modify the settings. There is an abundance of free programs on the Internet that use the IrDA interface.